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Charged pion, kaon and proton spectra in Ar+Ar and p+p collisions at $\sqrt{s_{NN}}$ = 11 and 27 GeV in UrQMD model

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The study of the momentum spectra of charged particles allows one to obtain information about the thermodynamic characteristics of system arising from the collision of heavy ions. This research can improve the understanding of their interactions and dynamics in various physical processes.

The aim of this work is to study the momentum spectra of pions, kaons, and protons in Ar+Ar and p+p at energy $\sqrt{s_{NN}}=11$ and 27 GeV, respectively, by using the UrQMD (Ultrarelativistic Quantum Molecular Dynamics) model for the SPD experiment at NICA. The spectra are presented as a function of transverse momentum and collision centrality. The extracted kinetic temperature for the protons, pions and kaons was obtained using hydrodynamic Blast-Wave approach based on Boltzmann statistics. Physics implications will be discussed.

Primary author(s): KARPOVA, Yulia; KONDRATEV, Matvey

Co-author(s): POVAROV, Alexey (NRNU MEPhI); КРАЕВА, Анна (National Research Nuclear University

MEPhI)

Presenter(s): KARPOVA, Yulia; KONDRATEV, Matvey

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